cate the fact that some sort of whirling, gusty squalls prevailed for 100 miles off the coast from Tampico to Tuxtlas (and inward to Pachuca, latitude 20° 2′, longitude 98° 6′, a little north of the City of Mexico), and to Vallenacional (in the northern part of Oaxaca, latitude 17° 9′, longitude 19° 1′, but still on the northern edge of the Mexican Cordilleras). In general there is no evidence that this storm passed over the mountains and down the Pacific slope.

(4) On July 11, 1893, Batturoni writes that the "cyclone of July 7th, in Iowa [he means the tornado of July 6th] was followed by violent wind, rain, and lightning on the 8th at Vera Cruz. The storm came first from the south, then southeast, then north, then northwest, and prevailed simultaneously to the south-southeast and northwest of the station. Rain continued until 5 a. m. of the 11th; the rainfall was 2.42 from 1. a. m. to 5. a. m., with north wind and lightning. The rainfall from the evening of the 8th till 6 a. m. of the 11 th exceeded 9 inches."

"On the 9th, at 10 a. m., he announced that the storm at Vera Cruz was a consequence of a cyclone in the region between Nevada, Nebraska, and Texas, and subsequently learned of the tornado near Des Moines, Iowa."

The presence of the typical cloud, of which he had spoken before, and which remained persistently in the horizon at the northwest one-quarter west, enabled him to foretell the weather (violent north wind with rain) two or three days in advance. He concludes that that cloud is coincident with the American cyclones [tornadoes] north of the Mexican frontier. The storm was also felt severely for a distance of 100 miles around Vera Cruz. The barometer was low for two or three days before the storm, but the temperature did not rise.

PROCEEDINGS OF THE METEOROLOGICAL CONGRESS HELD AT CHICAGO AUGUST 21–24, 1893.

(By OLIVER L. FASSIG, Secretary.)

Monday, August 21, at 10 a. m. the congresses of the Department of Science and Philosophy of the Congress Auxiliary of the Columbian Exposition were formally opened at the Memorial Art Institute of Chicago with an address of welcome by the President, Mr. C. C. Bonney, followed by responses from representatives of the various special congresses. At the close of this general session the different divisions met in rooms assigned to them, the Division of Meteorology, Climatology, and Terrestrial Magnetism meeting in room XXXI, in which the regular sessions were held daily from 10 a. m. to 2 p. m. from August 21 to August 24.

The chairman of the congress not being able to be present in person the first day, Prof. F. H. Bigelow, representing Prof. Mark W. Harrington, opened the session at 11 a. m. of the 21st with a few words of welcome and a statement of the objects of the congress.

The congress had no legislative authority. The main purpose, as previously announced, was to collect together a series of memoirs "outlining the progress and summarizing the present state of our knowledge of the subjects treated," and to print them in full in the English language.

The meetings, while thus making the reading and discussion of papers a matter of secondary importance, were by no means lacking in interest or profit to those who were present. But few of the papers could be read in full, owing to their great number and the absence of many of the authors. In all about 130 papers were read by title, in abstract or in full, forming a most valuable collection of memoirs prepared by writers of authority in their respective lines of research.

Among so many papers of merit, a simple list of which would occupy several pages, individual mention can not be fairly attempted.

While the papers were read in general session, they were assigned, in the printed program, to various sections according to the subject, each section being placed in charge of a responsible chairman.

Section A, Prof. C. A. Schott, U. S. Coast Survey, and Mr. H. H. Clayton, U. S. Weather Bureau, chairmen. The papers of this section are devoted to instruments, their history and relative merits, and to methods of observation, especially to methods of observing in the upper air.

Section B, Prof. Cleveland Abbe, U. S. Weather Bureau, chairman. This section is the most extensive in its scope, dealing mostly with questions in dynamic meteorology; much attention is given to the study of thunderstorm phenomena in various countries.

Section C, Prof. F. E. Nipher, Washington University, chairman, comprises a series of sketches of the climate of different portions of the globe.

Section D, Major H. H. C. Dunwoody, U. S. Army, chairman, is devoted to the discussion of the relation of the various climatic elements to plant and animal life.

Section E, Lieut. W. H. Beehler, U. S. Hydrographic Office, chairman, deals with questions relating to marine meteorology, particularly to ocean storms and their prediction, methods of observation at sea, and international co-operation. During the reading of a paper on the work of the Hydrographic Office of the Navy, Lieut. Beehler had on exhibition a fine bust of Lieut. Maury by the sculptor Valentine, of Richmond, Va.

Section F, Prof. Charles Carpmael, Director of the Canadian Meteorological Service, and Mr. A. Lawrence Rotch, Director of the Blue Hill Observatory, chairmen, comprises papers relating to the improvement of weather services and especially to the progress of weather forecasting.

Section G, Prof. F. H. Bigelow, U. S. Weather Bureau, chairman, deals with problems of atmospheric electricity and terrestrial magnetism and their cosmical relations.

Section H, Prof. Thomas Russell, of the U. S. Lake Survey, chairman, has to do with rivers and the prediction of floods.

Section I, Oliver L. Fassig, Librarian U. S. Weather Bureau, chairman, is devoted to historical papers and to bibliography, with special reference to the history of meteorology in the United States.

Prof. Mark W. Harrington, Prof. F. H. Bigelow, Capt. P. Pinheiro, of Rio Janeiro, and Lieut. W. H. Beehler successively presided over the meetings. The printed program distributed at the sessions of the congress contains a list of all papers presented. Copies of this may be obtained from the secretary upon application.

At the close of the last session a resolution was offered calling for recommendations by the congress relating to (*a*) international co-operation in observations of auroras, (*b*) simultaneous (Greenwich noon) observations daily at all stations on land and sea, in addition to observations at other times, (*c*) investigation of the earth's magnetic polar current and the exact determination of the solar rotation. As the congress had no legislative authority, it was agreed to hold a special session for the consideration of these questions after adjournment, on the following day.

Preparations have been begun for the printing of the papers, and an effort will be made to complete the work at an early date.